Critical Care Therapy and Respiratory Care Section

Category:	Clinical
Section:	Special Procedures
Title:	Siemens Fluoroscopy Unit
Policy #:	03
Revised:	05/00

1.0 DESCRIPTION

1.1 Definition: The Siemens Siremobil is a portable fluoroscopic unit used to gain structural and functional information about the body through the use of x-rays emitted from a standard C-arm apparatus. Its use must comply with all safety procedures described in the CCMD Safety and Hazardous Materials Manual (refer to the "Radiation Safety for Nurses Orientation" Manual, especially ppgs. 11-12).

1.2 Indications

1.2.1 Transbronchial biopsy

1.2.2 Temporary pacemaker insertion

1.2.3 Right heart catheterization

1.2.4 Pulmonary and/or abdominal diagnostic examination

1.2.5 As prescribed by CCMD physicians

1.3 Contraindications: This unit is inappropriate for operation where and when flammable gases or vapors are present.

1.4 Precautions

1.4.1 Health risks exist for those who are exposed to radiation at high levels and over prolonged periods (refer to the Nuclear Regulatory Commission Regulatory Guide 8.4 in the CCMD Safety and Hazardous Materials Manual for specific information). All health care personnel should practice the **ALARA** principle - **A**s **L**ow **A**s **R**easonably **A**chievable, which means exposure should be kept to a minimum and unnecessary exposure should be avoided.

1.4.2 Radiation exposure carries an even more important risk for pregnant women due to the risk to the unborn child. A dose limit of 500 millirem has been set by the Nuclear Regulatory Commission as the total permissible exposure for the embryo/fetus. The **ALARA** principle should be sufficient to protect the embryo/fetus from levels of exposure in excess of this limit; however, it is advisable for pregnant staff members to avoid any procedures which utilize radiation when workload and staffing permit. Refer to the "Radiation Safety for Nurses Orientation" Manual, ppg. 7-9 and the Nuclear Regulatory Commission Regulatory Guide 8.13 for further information about prenatal radiation exposure.

2.0 EQUIPMENT

2.1 Mobile fluoroscopy unit and monitor

2.2 Lead aprons for all persons who will be within six feet of the fluoroscopy unit during operation

2.3 Lead barrier for the patient for pelvic protection

3.0 PROCEDURE

3.1 Position a lead barrier **under** the patient's pelvis, when appropriate, to protect against radiation to the reproductive organs. *Note:* the radiation source is the metal cone at the bottom of the C-arm.

3.2 Position the fluoroscopy monitor in such a way as to ensure an unobstructed view for the physician and/or chief operator.

3.3 Position the Siremobil C-arm directly above that portion of the patient's body requiring radiologic imaging. Use of the raising and lowering softkeys on the Siremobil (refer to the "Concise Operating Instructions" at the end of this procedure) will allow for adjustment of the height of the C-arm for added maneuverability during positioning of the unit.

3.4 Plug the interfacing power cables from the Siremobil into the back of the monitor and plug the AC cable from the monitor into an appropriate grounding wall socket.

3.5 Don a lead apron and instruct all persons who will remain within six feet of the unit during operation to do the same.

3.6 Activate the Siremobil ON key. The unit will now perform a brief self-test and warm-up. When the "readiness for operation" indicator no longer flashes, the unit is fully functional.

3.7 Depress either the foot pedal or the fluoroscopic "eye" to initiate imaging (the buttons must be pressed continuously to maintain live imaging).

3.8 Rotate the image to obtain the proper orientation using the image rotation softkeys located on the left half of the keyboard.

3.9 Use the brightness and contrast control softkeys to adjust the image quality. To preset the contrast/brightness of the monitor, press both buttons simultaneously.

3.10 An audible alarm is activated each 4.5 minutes of exposure time. To silence the alarm, depress the "bell" softkey.

3.11 Illumination of the yellow radiation indicator light signifies that the unit is overheating. When this occurs, the quality of the image will be reduced automatically, but operation may continue *only* through depression of the "eye" softkey. When the red light is illuminated, fluoroscopy **must** be terminated until the unit is sufficiently cooled down.

4.0 POST PROCEDURE

4.1 At the termination of the procedure, place the C-arm in the down position. Turn the Siremobil OFF before unplugging any electrical cords.

4.2 Wipe off any soiling that may have occurred to the unit or lead aprons using alcohol or any other approved disinfectant.

4.3 Properly store all equipment.

5.0 REFERENCES

5.1 CCMD Safety and Hazardous Materials Manual - Radiation Safety Section.

5.2 Siemens Siremobil 4H-U/4N-U/4K-U Concise Operating Instructions.

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